

History of the Biology Department of John Carroll University¹

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ABSTRACT. From 1886-1928, biological science at the then St. Ignatius College (now John Carroll University) was taught as an elective, normally by faculty from other departments or by local medical doctors. Father Edward Calhoun, S. J., appointed in 1928 to chair the newly organized Department of Biology, was the first faculty member trained in biology. By 1936 the department had the stated purpose of preparing students for entry into schools of medicine and dentistry, and teaching.

In 1960, when Fr. Philip Vogel succeeded to the department chairmanship, serious discussions concerning expansion into other areas were held. In 1966, the department announced its intentions to make its orientation three-fold: pre-professional (medical), basic biology, and basic research.

Plans for this change in purpose were slowed in 1969 with the deaths of three of the seven faculty members. Their replacement was seriously questioned, and the department was on the verge of being absorbed by Chemistry. Dr. Jean Cummings successfully reversed the opinion of the administration, and the department survived.

A second change in policy occurred almost immediately when, in 1970, the department and administration agreed to seek replacement faculty for both teaching and research duties. The present faculty of eight is reflective of that policy. The department enters its second 100 years committed to both undergraduate and graduate education, with a diverse faculty and an outstanding record of achievement over the past 10 years.

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John Carroll University was founded in 1886 under the title of St. Ignatius College as a "college for men" (Gilmore 1886), the 19th of 28 Jesuit colleges and universities in the United States. Georgetown University (1789) was the first. The Jesuits who founded St. Ignatius College were exiles from Germany, forced out by Bismarck's *Kulturkampf*. They brought with them the traditional structure of the Jesuit college as an extension of the apostolate of the religious community to prepare the student morally as well as intellectually. The principal instrument of this education was the classical course of seven years, in which the first three years were devoted to learning languages as necessary tools. The student was then considered prepared for university work. The next four years were devoted to the study of classical literature and Latin and Greek prose and poetry, and to developing the ability to express one's self in these languages, as well as in the vernacular, orally and in writing. The final year was devoted to philosophy. There were also electives in the sciences, history, and geography, as well as other subjects. If the student completed only six years, a certificate was given. Completion of the year of philosophy made the student eligible for the baccalaureate degree, which the college was empowered to grant when it was chartered in 1890 (State of Ohio 1890). The first two degrees were awarded in 1895.

What was the role of science in this program? Within the classical course there was provision for chemistry and physics on a fairly elementary level. Biology was found in the three-year commercial course, which was provided reluctantly as a concession to American needs. In 1892, biology and chemistry were listed in the *Catalogue* (St. Ignatius College 1892). It would appear from the description of the single biology course, listed as physiology, that it was intended to be more of an information course to provide good health habits. The course was taught by a medical doctor, B. F. Hambleton, in the

years 1905 to 1908. Not until the 1906 *Catalogue* was biology listed as an independent field. Two courses, zoology and botany, were mentioned, but neither provided a laboratory experience (St. Ignatius College 1906). A course in histology was added in 1908, when Father Frederic Siedenburgh, S. J. (Society of Jesus) was added to the staff. He was the first instructor to be listed as specifically involved with biology.

Specialization as it is known today was not yet represented on the totally Jesuit staff. Instructors were assigned to a particular year of study in the seven-year classical course. In the Jesuit tradition, it was expected that the student would have the same instructor in many subjects that year, so that there was a bond between student and teacher (Society of Jesus 1599). Exceptions to this practice are found in the appointments of Father George J. Pickel, S. J., in 1892, and Frederick L. Odenbach, S. J., in 1893 (Figs. 1,2). Both were American-born, and both were specifically trained in science. Although each is better known in fields other than biology, they were both trained in that field during their studies in Europe. Father Pickel, better known as a chemist, was interested in botany, whereas Father Odenbach, known as the "Father of American Seismology," was also a zoologist.

Between 1895 and 1923 Father Odenbach divided his time between a meteorological observatory, which he established in 1895, and biology, in which he developed a program with a broad approach in general zoology and comparative zoology without much laboratory experience. He also began a museum of biological specimens. In 1915, Father Odenbach established a Scientific Academy to promote student personal endeavors along scientific lines. In 1911, Odenbach had organized a seismological service among Jesuit colleges and universities in the United States, which was replaced by the Jesuit Seismological Association founded in 1925 by Father James A. Macelwane, S. J.

By World War I the Jesuits in the United States had come to realize that the traditional Jesuit program had to

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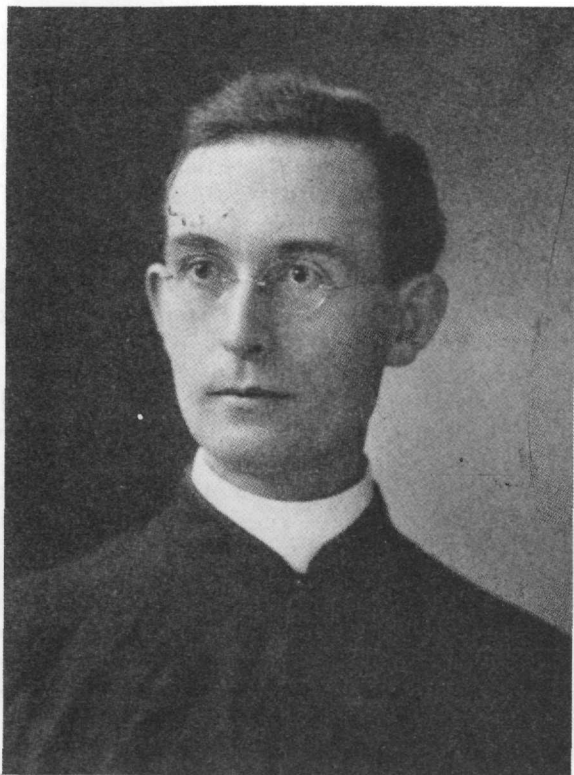


FIGURE 1. Fr. George J. Pickel, S.J., B.A. (circa 1910).



FIGURE 2. Fr. Frederick L. Odenbach, S.J., B.S. (circa 1915).

be modified to conform to developments in American higher education and the rise of accrediting agencies. An inter-province committee of Jesuits had decided by the end of the war that every Jesuit college should meet the standards required of other American institutions of higher education. The *Catalogue* of 1919-1920 was the first one that reflected the results of such action at St. Ignatius College. The *Catalogue* listed the requirement of eight hours in science for the B. A. degree and 16 hours of science, plus the science major, for the B. S. degree (St. Ignatius College 1919). The college was accredited by the North Central Association of Colleges and Secondary Schools in 1922. The biology offerings were invertebrate zoology, comparative anatomy, and two courses in embryology, all with laboratories. There was no further expansion until 1925. By that time Fr. Odenbach had confined his activities to astronomy; Mr. Charles Hill, S.J., was teaching all the biology courses with the occasional assistance of a local medical doctor (The John Carroll University 1925). Courses were expanded to include general biology, botany, vertebrate zoology, and genetics. The first professionally trained biologist with a doctorate was Father Edward J. Calhoun, S.J., who was assigned to chair the department in 1928 (Table 1). Under Calhoun's direction a graduate program was attempted for the first time, but with little success.

Calhoun was replaced in 1935 by Father Elmer Trame, S.J., whose degree was from St. Louis University. Manly L. Branin, a layman with a degree from the University of Michigan, was also added. Courses were expanded to include mammalogy, biological technique, protozoology, and animal behavior. A conference course on readings of original materials was also given. The *Catalogue* of 1936-37 announced for the first time the purpose of the biology department:

"... primarily cultural, that is to acquaint the student with the functional and structural aspects of living organisms, from the simple to the most complex, and their interrelationships. Such a training affords, in addition to its cultural aspects, adequate preparation for later professional studies, *particularly in the fields of medicine and dentistry*, and for teaching or graduate study in the biological sciences." (John Carroll University 1936, emphasis added).

Not until 1960, when Father Philip Vogel, S.J., became chairman, would the departmental orientation toward pre-professional studies begin to change toward the study of biology as a major discipline.

As long as St. Ignatius College remained in its original location, which it shared with St. Ignatius High School on the west side of Cleveland, there was no opportunity for growth, (Fig. 3). Total enrollment in the college had risen from 116 in 1919 to 510 in 1925, and 613 in 1930. A similar high school enrollment in the same building taxed the facilities beyond their limits and made laboratory work in the sciences difficult. Anticipating a move to the east side, the college in 1923 purchased the present property in University Heights (Gavin 1985) and made plans to develop a university under the name of Cleveland University (State of Ohio 1923a). The plans were grandiose and included a number of professional schools. However, the elite and powerful in the City of Cleveland

TABLE 1
Chronology of the Faculty of Biology, John Carroll University

Faculty Member	Degree	University	Interest	Period of Service
Pickel, George J., S. J.	B. A.	Campion	Chemistry	1892-1908
Odenbach, Frederick L., S. J.	B. S.	Canisius	Meteorology	1893-1926
Hambleton, B. F.	M. D.	—	Medicine	1906-1907
Seidenburg, Frederic L., S. J.	—	—	Biology	1908-1909
Hill, Charles F., S. J.	—	—	Biology	1923-1925
McCarthy, John J.	M. D.	U. of Michigan	Medicine	1926-1930
Calhoun, Edward J., S. J.*	Ph. D.	Fordham	Botany	1928-1934
Brannin, Manlif L.	Ph. D.	U. of Michigan	Invertebrates	1934-1937
Trame, Elmer J., S. J.*	Ph. D.	St. Louis	Zoology	1935-1936
Ahearn, Terrence H., S. J.*	M. A.	St. Louis	Cytology	1936-1960
Gilchrest, Edwin F.	Ph. D.	St. Louis	Histology	1937-1971
Dethier, Vincent G.	Ph. D.	Harvard	Behavior	1939-1942
Welch, d'Alte A.	Ph. D.	Johns Hopkins	Invertebrates	1942-1969
Allen, John G.*	M. A.	Western Reserve	Genetics	1948-1981
Peters, Walter, S. J.	Ph. D.	Cambridge	Entomology	1954-1956
Vogel, Philip H., S. J.*	Ph. D.	Loyola	Zoology	1956-1969
Cummings, Jean M.*	Ph. D.	Smith	Microbiology	1957-1981
Velardo, Joseph T.	Ph. D.	Harvard	Endocrinology	1962-1967
Acker, Thomas S., S. J.	Ph. D.	Stanford	Radiation Biology	1963-1968
Philip, Michael	Ph. D.	Michigan St.	Genetics	1964-1972
Skoch, Edwin J.	Ph. D.	Ohio State U.	Aquatic Biology	1969-Pres.
White, Andrew M.	Ph. D.	Ohio State U.	Ecology	1970-Pres.
McLean, E. Bruce*	Ph. D.	Ohio State U.	Ornithology	1970-Pres.
Moore, Fenton D.	Ph. D.	Western Reserve	Cell Biology	1972-Pres.
Gaby, Ronald	Ph. D.	New Mexico St.	Population	1970-1973
Wideman, Cyrilla H.	Ph. D.	Illinois I. T.	Neurobiology	1972-Pres.
Pearce, Thomas L.*	Ph. D.	U. of Virginia	Anatomy	1975-1981
Flechtner, Valerie R.	Ph. D.	Wisconsin	Genetics	1981-Pres.
Coburn, Miles M.	Ph. D.	Ohio State U.	Ichthyology	1982-Pres.
Meier, Timothy, S. J.	M. S.	Georgetown	Immunology	1984-Pres.

*Denotes Chairperson

forced the surrender of the name Cleveland University four months after it was chosen; the full story can be found in the centennial history of the University (Gavin 1985). The name The John Carroll University was chosen in September 1923 (State of Ohio 1923b), but was later officially changed to John Carroll University by Charter Amendment, (State of Ohio 1932). The University was named in honor of John Carroll, the first Catholic Bishop of the United States and a personal friend of George Washington and Benjamin Franklin. He presided over the see of Baltimore, which included the entire United States in 1789.



FIGURE 3. St. Ignatius College and High School, 1890.

The 1923 fund-raising campaign failed miserably, and it was not until 1930 that a successful campaign was completed and building of a scaled down version of the original plans began, (Fig. 4). Because of the Great Depression, many were unable to redeem their pledges, so the buildings were not finished until 1935, when classes first opened in the new quarters. Space adequate for the enrollment at the time was now provided. The biology wing of the main building had four floors devoted to classrooms and laboratories.

A new era opened for the biological sciences at John Carroll University with the move to University Heights in 1935 and the appointment of Father Terrence Ahearn, S. J., as chairman of the department in 1936 (Fig. 5). Fr. Ahearn had been regent of the Medical Schools of Loyola University in Chicago and at Creighton University in Omaha. He had previously been professor of biology at Marquette University. He became the first representative of the Biology Department on the Committee on Pre-professional Studies at John Carroll. During the early portion of his 24-year tenure as chairman, the staff was expanded to include Edwin F. Gilchrist from St. Louis University in 1937 and Vincent G. Dethier from Harvard in 1938. Course offerings were increased to 20 undergraduate courses and 10 graduate courses (John Carroll University 1938).

Increased enrollment in biology coupled with the general growth of the University soon forced teaching of the expanded program in smaller quarters. Biological science was soon restricted to two floors of the wing. With

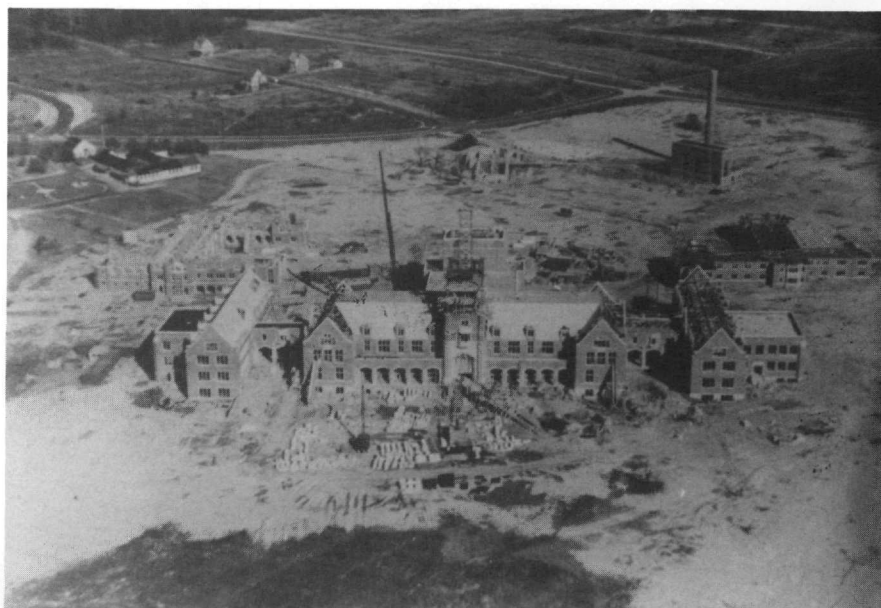


FIGURE 4. John Carroll University under construction in 1933.

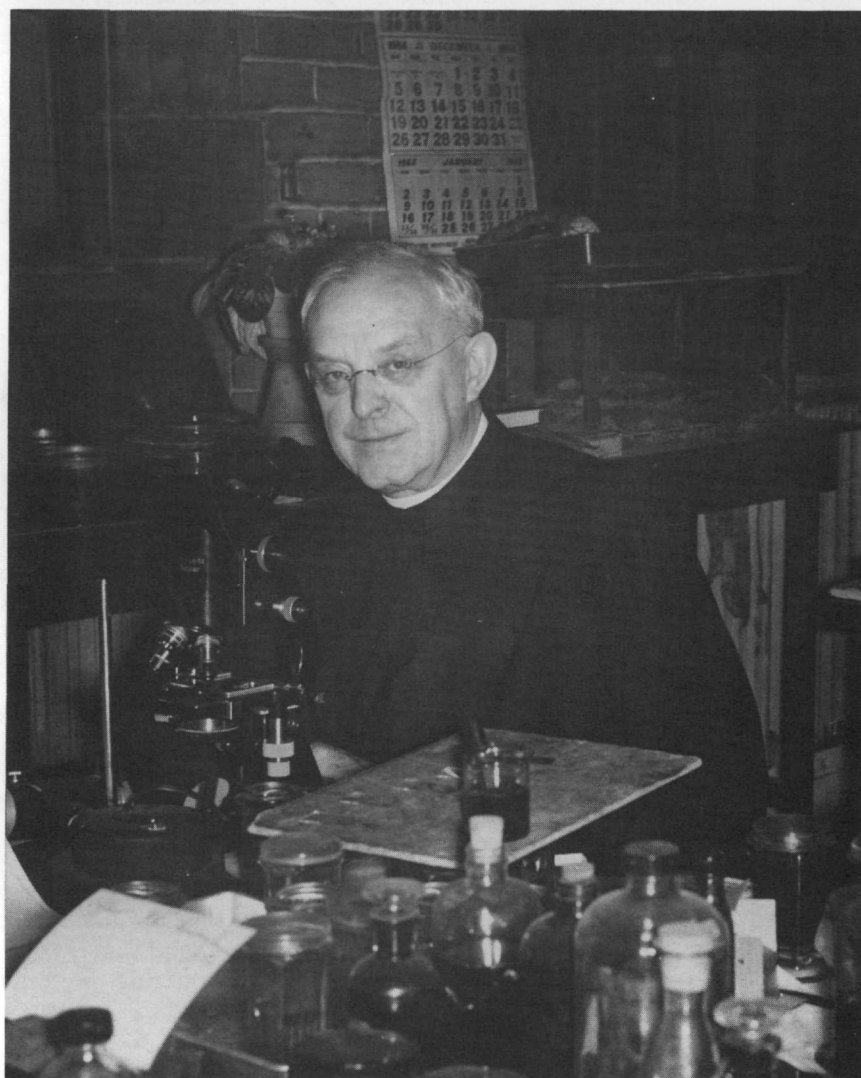


FIGURE 5. Terrence Ahearn, S.J., M.A., 1961.

laboratories in anatomy being held (often in hallways) in what had now also become a general classroom building, the biology coursework created a new problem for the University. Poor ventilation and the often warm days of autumn caused the formaldehyde fumes from the cat dissections to permeate the other classrooms. This caused considerable distress among the students and faculty of the language departments with whom biology now shared the facility. Further, the lack of adequate storage facilities allowed the partially dissected cats to become dry and nearly useless after a few laboratory periods.

The anatomy students solved both problems in 1941 when they designed the "zippered cat". During the initial dissection the abdomen was opened, and a zipper (often color coordinated to the cat) was sewn to the skin. Dissection proceeded and, after each laboratory period, the cat was zipped closed. This kept the dissection moist and lessened the permeation of the formaldehyde fumes throughout the building (Fig. 6).

The years of World War II were lean ones for University enrollment. Although the U. S. Navy V-12 program helped keep the University open, the total civilian enrollment was about 200 students. Enrollment in biology was minimal. In spite of these poor enrollments, Dr. d'Alte A. Welch, with a degree from Johns Hopkins, was added to the staff in 1942. In the 1950's, however, the picture changed dramatically. The total University enrollment climbed to over 3,000 students. The Biology

Department enrollment of undergraduates was at about 300; of these, approximately 60 to 70 were upper-classmen. In 1961, the department enrollment was 373 (Biology Department 1961), with about half of that number in the freshman general biology course. The graduate program was again attempted, this time with some success.

Major problems developed in the 1950's. These included an overloaded core curriculum because of heavy requirements in philosophy and theology. There was also a lack of facilities for research. The general orientation of the department was still toward the pre-medical and pre-dental programs, but the core curriculum requirements added 27 credit hours to the normal biology program. This made it difficult to meet the requirements of the pre-professional programs in less than 155 credit hours. Not until the mid-1960's would relief be provided (Gavin 1985).

Although research was being done, such as d'Alte Welch's interest in snails, Ahearn's work in cytology and embryology, and Peters' studies in genetics with water bugs, heavy teaching loads, insufficient time for research or publication, and a general lack of facilities became major problems in the department. In 1957, after Father Vogel had joined the department, a reorientation of the department away from the almost exclusive interest in pre-medical and pre-dental programs was considered. Botany and bacteriology were added in the hope of at-

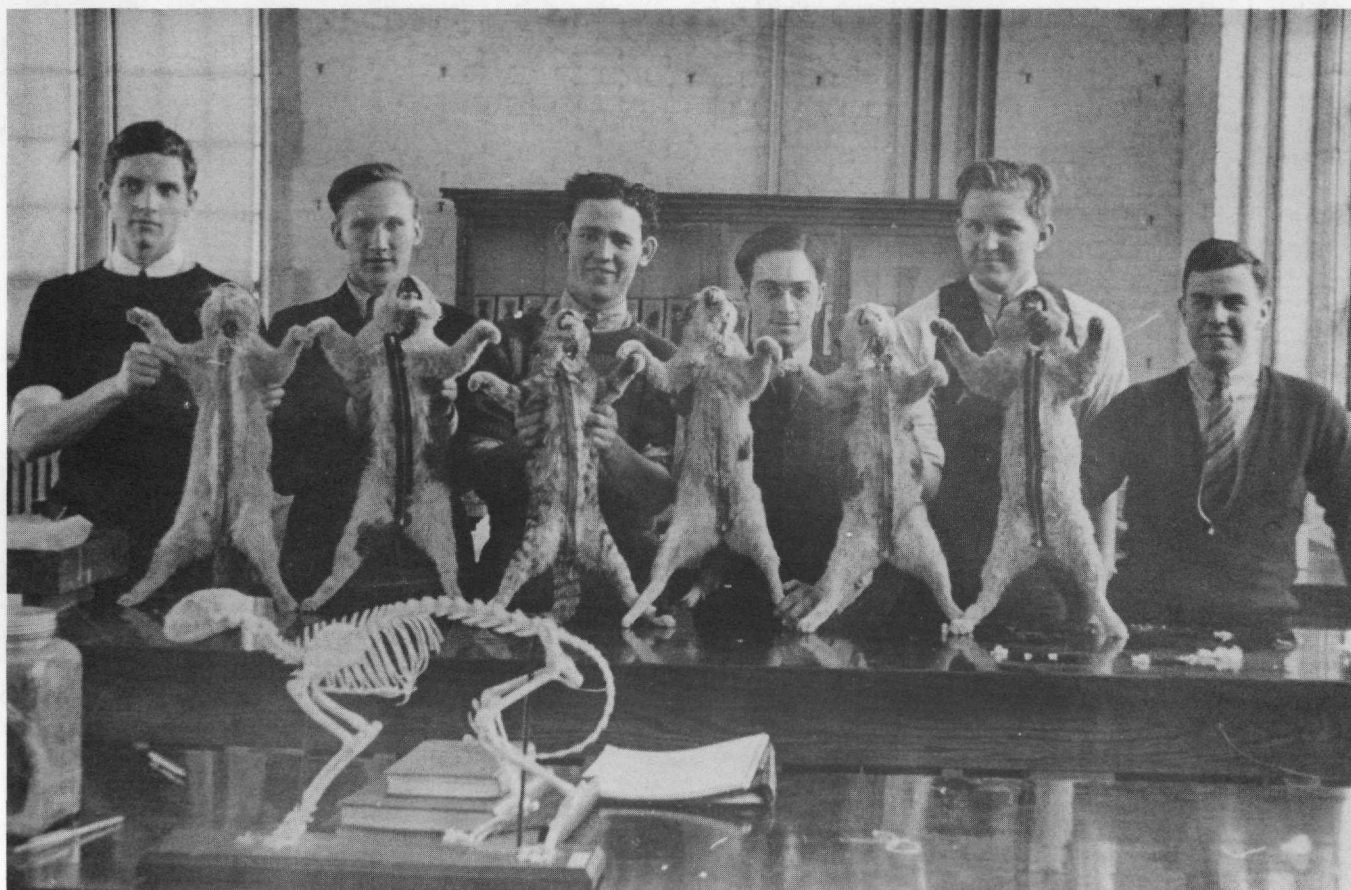


FIGURE 6. The comparative anatomy class of 1942 with "zippered cats".

tracting biology majors who would be interested in teaching. Departmental meetings in the late 1950's showed some interest in developing a program for secondary-school teachers at the master's level, but there was little interest in an M. S. in basic biology. At a meeting in January 1958, the department turned down a request from a local hospital for a program at the undergraduate level in medical technology similar to the ones at Marquette and St. Louis Universities. The program would have involved three years in the pre-medical program at John Carroll and one year in the clinical department at the hospital. The department wished to continue to improve its present programs and not develop technical programs that would not result in a baccalaureate degree (Biology Department 1958).

Throughout the 1950's it was obvious that the department felt it was offering graduate work only because the Dean of the Graduate School insisted. Most students were advised jointly with members of the Chemistry Department. It was equally obvious that if the graduate program were to continue, it would have to be greatly improved. When Fr. Philip H. Vogel, S. J. (Fig. 7) succeeded Father Ahearn as chairman of the department in 1960, time and facilities for research in biology were still lacking. Dr. d'Alte Welch had shifted his interests to the history of children's literature and no longer researched molluscs. Fr. Ahearn had left the department as had Dr. Peters.

Dr. Joseph Velardo joined the department in 1962. He was located temporarily at John Carroll, supposedly while a laboratory was being built for him at St. Ann's Hospital. It was difficult to find space for Velardo in the already-crowded facilities, and the problem became more serious as Velardo received grants for his work in reproductive physiology and needed more space. Velardo also taught graduate courses. The presence of Dr. Velardo stimulated interest in a graduate research program once again (Vogel 1964). While he provided a needed research component for the department, his status in the de-



FIGURE 7. Fr. Philip H. Vogel, S. J., Ph. D., 1967.

partment caused considerable internal tension (Gavin 1986). A stay that was originally intended to be one and one-half years extended to over four years. Discussions of the new science center, which began in 1961, offered hope for a solution to the research and space problems, but by the time the center was completed in 1968 (Fig. 8) Velardo had moved to Loyola University in Chicago, Illinois.



FIGURE 8. Science Center nearing completion in 1968.

The increasing number of women enrolling in the Evening College in the late 1950's created a new situation for the biology department. The small staff had the additional burden of providing evening courses, including laboratory sessions. The College of Arts and Sciences did not officially become coeducational until 1968 (Schell 1985), so when it was impossible for the women registered in the Evening College to secure a course in the evening, a permission called "guesting" was employed to allow them to register for day classes. Nevertheless, the department felt that in recruiting women it could not be honest in promising a day schedule, when they had to register in the Evening College. The situation was further complicated with the establishment of a nurses' day program in conjunction with Metropolitan General Hospital in 1965. The controversy over coeducation reached its peak at this time, but it was not until three years later that the issue was settled, when the Evening College was replaced by the University College of Continuing Education.

Meanwhile, a curriculum revision in the *Catalog* of 1966 included a science-mathematics requirement of all students (John Carroll University 1966). This meant an additional strain on the small staff and on laboratory space. The addition of Thomas Acker, S.J., and Dr. Michael Phillip in 1964 was offset by the illness of Dr. Edwin Gilchrist, who never fully recovered and eventually retired in 1969.

In 1963, the University announced a "Decade of Progress" plan that dealt primarily with facilities needed to accomplish the goals and objectives of the University's mission. Academic planning in the departments was to be undertaken (John Carroll Univ. 1963). When the Department of Biology developed its plan within the context of general university planning, an effort was made to make the department more oriented toward biology as a discipline both in program and in research. This marked an official change in the direction of the department from a primarily pre-professional and cultural orientation as stated in 1936. Father Thomas Acker, in support of Father Vogel's idea, wrote a letter to the Dean of the College of Arts and Sciences on August 20, 1967 (Acker 1967). He agreed with the need to add to the pre-professional character of the department by pursuing such a program as aquatic biology which was "... current, locally attractive because of Lake Erie, and funds are available."

However, no amount of planning could have foreseen the difficulties and events facing the Biology Department in the years immediately preceding 1975. The deaths of three full professors between 1969 and 1971 were severe blows from which the department was a long time recovering. Dr. d'Alte Welch died of gunshot wounds incurred as a robbery victim in Cleveland, Father Vogel suffered a fatal heart attack, and Dr. Edwin Gilchrist died after a long illness. Moreover, departmental discussions on planning for a new science center, begun in 1966, had led to such divergence of opinion that the net result was unsettling for the department. Although the role of Dr. Velardo had been settled, the effects of the misunderstandings of that situation also remained.

Student concern over counselling for pre-professional programs also surfaced. These students felt that the

change in direction would affect the quality of the pre-professional programs of the department. These issues, rumors, and misunderstandings caused the deans to meet with the department on more than one occasion to help clarify the misinformation that continued to resurface. In spite of these attempts of the administration at clarification, there were still differences of opinion over the direction of the department, the purpose and quality of the graduate program, and the proper type of undergraduate curriculum during the transition to a program of biological science. There seemed to be some agreement that the orientation of the department in the direction of the pre-professional student should continue. Not only did the three above-mentioned deaths occur during these discussions, but the credentials of one of the newer faculty members were seriously questioned in 1973, well after he had been added to the department. The resignation of this faculty member, removed considerable tension, but many problems remained, including a 40-year-old but still fledgling graduate program. The 10-year review by the North Central Association in 1974 did not fail to notice the unsettled situation of the Biology Department; the visiting team understood, however, that remedies were already under way (North Central Association 1974).

The loss of three senior faculty members between 1969 and 1970 had created a major problem of staffing in the department. Dr. Jean Cummings understood the problems and agreed to continue as chairperson on a temporary basis, even though health reasons made the task difficult for her. However, there was a pervading fear within the University administration that the projected lower enrollment would result in overstaffing. Early in 1970 the president concluded that the Biology Department should be absorbed into the Chemistry Department, forming a combined Chemistry/Pre-Professional Department. With only three tenured staff members and two new appointments, declining enrollment projections seemed to dictate consolidation. However, in a meeting with President Schell and Dean Gavin of the Graduate School, the idea of not replacing two of the deceased faculty members in biology was countered effectively by Jean Cummings, and the department remained intact (Gavin 1986). The department, in view of the orientation of the Cleveland State University biology program, then reaffirmed its intention of staying with organismal and environmental programs (Biology Department 1970). Dr. Cummings added Drs. White, Gaby, and McLean to the staff in 1970. Two additional faculty members, Drs. Wideman and Moore, were added in the next two years. In 1972 Cummings was succeeded by John Allen, who reluctantly remained as chairman until 1975.

In 1975, Dr. Thomas L. Pearce, a chairman from outside the University, was named for the department. Pearce proceeded to follow through with the planning recommendations of 1966. At a department meeting in December of that year, there had been a unanimous decision to direct the department's attention for the next 10 years to aquatic biology (Biology Department 1966). This included the search for faculty qualified in this area and the development of a Grand River Research Station. There were also plans to involve undergraduates in a fresh-water biology program. In addition to the attention

given to pre-medical and pre-dental programs, plans were made to recruit students in three general areas: career biology, secondary teaching, and research laboratory workers. The graduate program was to be designed to give broad training in biology in preparation for advanced work or for secondary school teaching. The move into the new science center in 1968 provided the opportunity for implementation of these plans.

The aquatic biology program was headed, however, for troubled waters. With a grant of \$90,000 from the Cleveland Foundation for three years beginning in 1970, the University established a Chair of Aquatic Biology under the leadership of Dr. Edwin Skoch of the biology department. The program was intended to establish a resource center for information and studies of the preservation of fresh waters in the northern Ohio area. The Chair sponsored a full program of teaching, research, and public service. Major conferences were held, seminars and lectures were given, and a 20,000-item file on research on fisheries, limnology, and Lake Erie was acquired. By the end of the third year, however, interest appeared to shift more towards the cost effectiveness of environmental mitigation and away from the scientific studies. Renewal of the grant was contingent on the offering of a program geared more toward economic interest. The grant was renewed on this condition in 1973. The new program was referred to as the Chair in Ecology and was under the direction of Dr. Joseph Bombelles of the Department of Economics.

At a Biology Department meeting in February, 1973, Dr. Skoch, after reviewing the accomplishments of the previous two years, announced that the administration had informed him that the Chair in Aquatic Biology would be absorbed by the Chair in Ecology, and that a new interdisciplinary program in environmental studies and analysis was to be established. Although the University wished to continue the biological and technical activities as part of the new program, the Biology Department did not wish to be absorbed into the new interdisciplinary program. It did recommend, however, for approval biology courses in the new environmental studies program (Biology Department 1973).

The Biology Department did continue its aquatic studies by participating in a portion of Consortium USEPA Grant to the City of Cleveland. In 1975, the results of this study by Dr. Andrew White, "Fishes of The Cleveland Metropolitan Area," was published by the U.S. Environmental Protection Agency (White et al. 1975). His other research projects involved watershed management studies in Geauga County, the effects of dredging in several Lake Erie harbors, and the effect of polluted dredged material disposal on the biota of Lake Erie. Dr. Cyrilla Wideman increased the research activity in biology with her cooperative program in neuroscience with the Psychology Department. Drs. Moore and McLean further contributed to the now growing research and graduate programs with their respective interests in cell biology and ornithology.

During the period 1975-1985, the Biology Department recovered from the earlier tensions and frustrations and began to develop along the lines established in the earlier planning. The department, without diminishing its interest in the pre-professional programs,

continued an emphasis on environmental studies and developed an interest in biology as a major discipline. Student enrollment in the department increased in those years from about 3.3% of the total university credit hours generated to 3.9% in 1984 (John Carroll University 1985). Departmental growth can be seen even more clearly when the increase in seats occupied is viewed against a slight drop in the total University enrollment during the same period (Fig. 9).

Evidence that the quality of the pre-professional programs was also improved during this period can be found in the percentages of acceptances to medical and dental schools. The acceptance rate of biology graduates into medical schools in 1975 was 33%; in 1984 it was 82%. Acceptance into dental schools in 1975 was 47%; from 1982 to 1985 the acceptance was 100% (Moore 1985) (Fig. 10).

Despite the growth of the department, staffing did not quite keep pace with the increased numbers of students, the developing graduate program, and the greater attention to research. A reduction in staff occurred in 1981 when the number of full-time members dropped from eight to seven. Currently, there are eight full-time staff: five full professors, two assistant professors, and one Jesuit Fellow. Under the chairmanships of Drs. Thomas Pearce (1975-1981) and Bruce McLean (1981-present), the department has managed in spite of difficulties to develop a considerable amount of research activity, while maintaining and improving the quality of its undergraduate and graduate programs.

Dr. Andrew M. White had been hired in 1969 to devote a third of his time to research in aquatic ecology and vertebrate biology (Schell 1969). This marked the beginning of a commitment by the Biology Department and the administration to a combination of teaching and research. The current faculty are representative of a continuation of that original commitment. Research facilities, nearly absent in 1967, are now available for faculty and graduate students. The present faculty, with time and facilities for research, is widely published and active.

From a position of instability in the early 1960's, through reorganization in the early 1970's, the department has progressed considerably. Medical, dental, and graduate school acceptances have increased dramatically. The graduate program, that had only a few students in 1956, now boasts 13 full-time students and several part-time candidates. A total of 73 M. S. degrees were conferred during the period of 1965-1985. With the development of a more active research faculty, undergraduate, graduate, and faculty research productivity has also increased greatly. Since 1975, the current faculty of eight has published 28 papers in scientific journals, presented 71 papers at scientific meetings or symposia, written 47 research reports or government scientific documents, and published 4 book chapters (John Carroll University 1986). As the department and its students move into the future, they are in a position to benefit from a certain measure of growth and stability over the past 10 years. They will undoubtedly continue the previously established commitment to excellence in undergraduate education, but with an even greater emphasis on research and graduate studies.

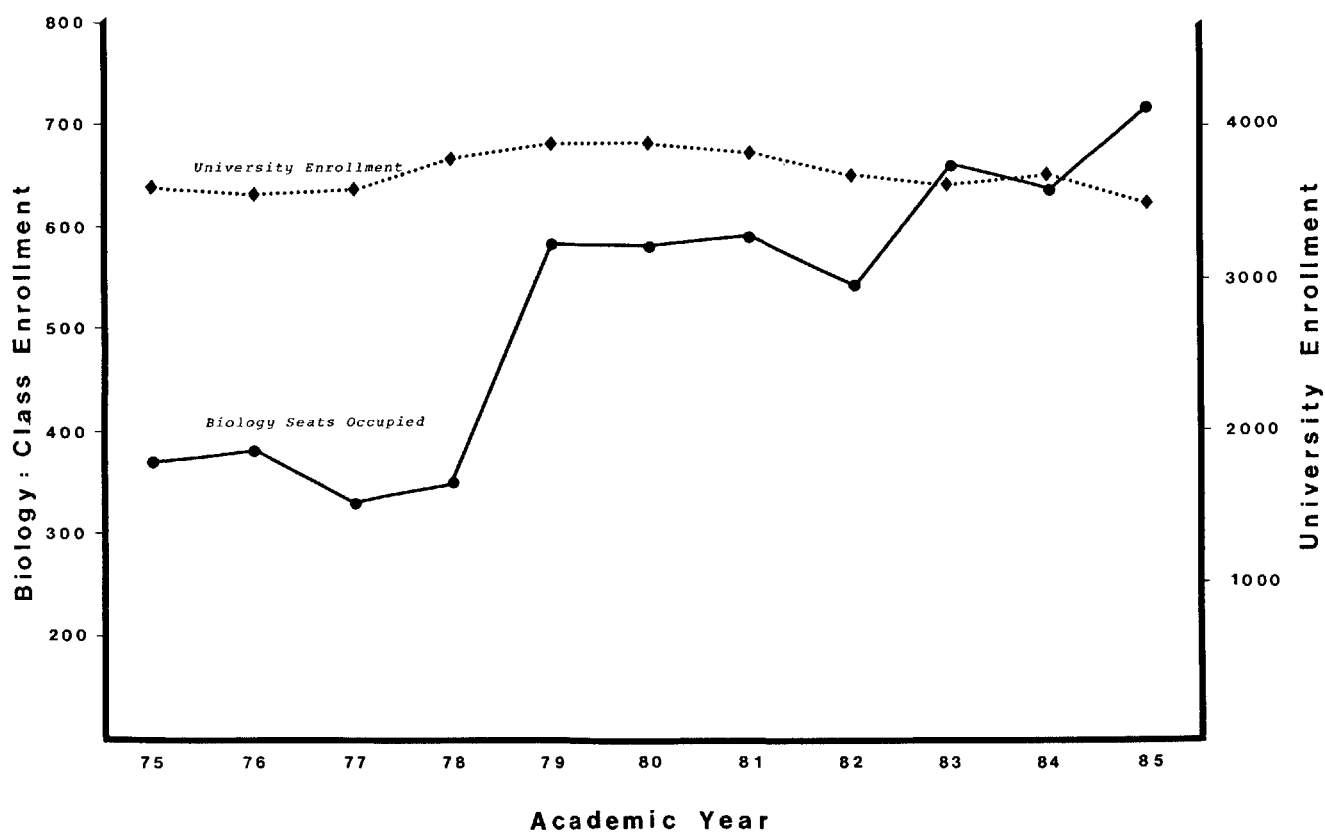


FIGURE 9. Average Biology Department enrollments *vs.* average University enrollment per semester for each academic year, 1975-85.

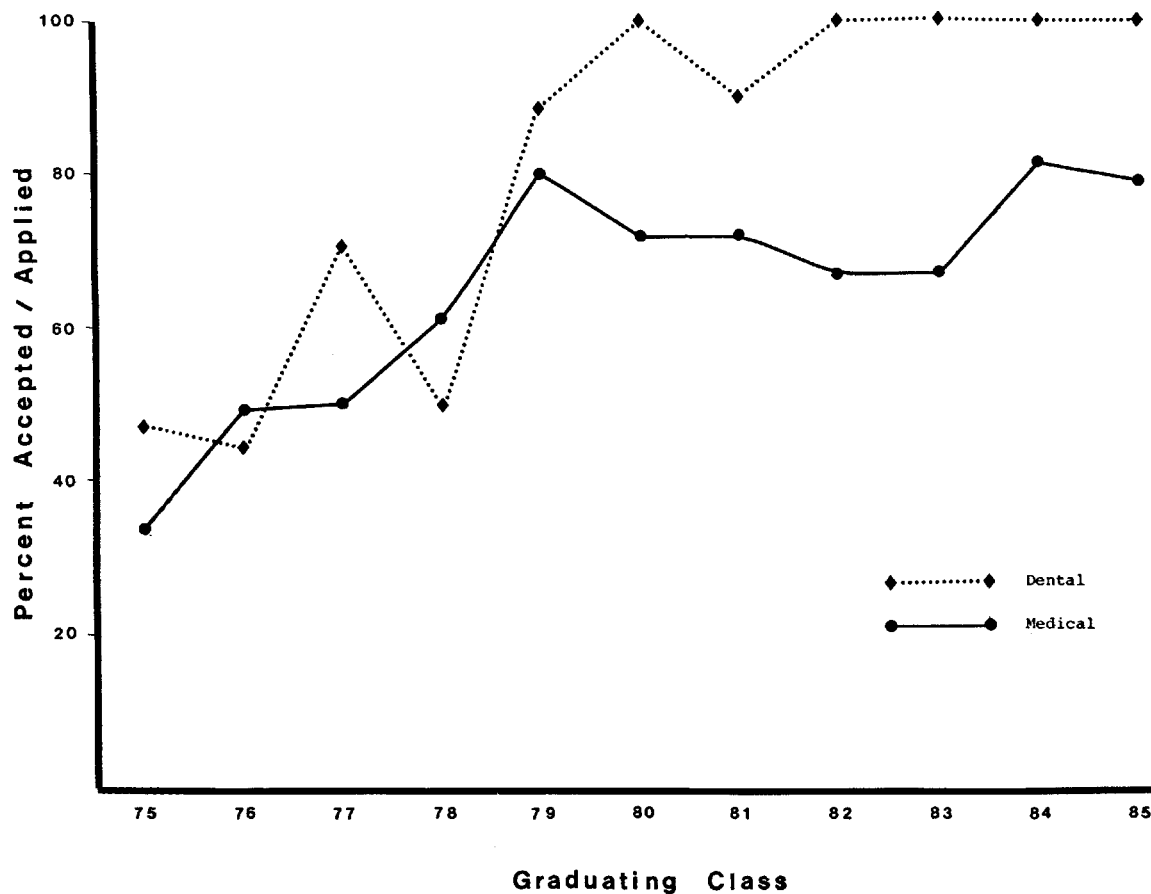


FIGURE 10. Medical and dental school acceptance rates for biology graduates, 1975-85 academic years.

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